

REMARKS

Claims 1-34 have been cancelled. Claims 35-42 are newly added and are currently pending. The foregoing amendments are being made to place the application in condition for allowance.

Newly added claims 35-42 find support on pages 34-36 and 64-70 of the specification and in the claims as originally filed. In addition, support for the claims is discussed below in the rejection under 35 U.S.C. § 112, first paragraph. No new matter is believed to have been added by the above amendments. Applicants reserve the right to pursue the subject matter of the cancelled claims in continuing or divisional applications without prejudice or disclaimer.

Applicants note new claims 35-42 largely correspond to claims 35-41 in parent application U.S. appl. no. 09/117,921 ['921], now abandoned. The rejections outstanding in the '921 application are addressed herein in order to expedite allowance and issuance. Thus, this amendment resumes prosecution of the invention as claimed in the '921 application.

By way of brief review, a Final Office Action was issued on April 8, 2004. Applicants submitted an After-Final amendment on August 5, 2003 and filed a Notice of Appeal on September 8, 2003. The Office issued an Advisory Action to the After-Final Amendment on September 10, 2003. Applicants filed a second After-Final Amendment on November 10, 2003. The Office has still not issued an Advisory Action in reply to the second After Final Amendment. However, this preliminary amendment addresses what are believed to be the remaining issues in the Final Office Action and Advisory Action.

Response to the rejections under 35 U.S.C. § 112, first paragraph

In the Final Office Action, page 2, claims 39-41 were rejected under 35 U.S.C. § 112, first paragraph, allegedly being directed to subject matter that was not described in such a way as to

reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The Office maintained the rejections of claims 39-41 in the Final Office Action because the claims were allegedly broadly drawn to use of nucleic acids encoding any dominant negative mutant and not limited to use of nucleic acids encoding catalytically inactive mutant desaturases. In reply, Applicants amended the claims to claim dominant negative mutants of fatty acid desaturases which are catalytically inactive. In the Advisory Action, the Examiner withdrew the rejection of claims 39-41 on the basis of the amendments to the claims. New claims 35-42 filed herewith are believed to be free of the previous rejection since claims 35-42 do not claim dominant negative mutants.

Response to the rejections under 35 U.S.C. § 112, first paragraph

In the Final Office Action, page 2, claims 35-41 were rejected under 35 U.S.C. § 112, first paragraph, allegedly being directed to subject matter that was not described in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The rejection is respectfully traversed.

In the Final Office Action, the Office maintained the rejection of claims 35-41 under 35 U.S.C. § 112, first paragraph rejection, stating “the examiner maintains the rejection given that the specification at pages 34-36 describes modifications of fatty acid content by overexpressing genes encoding proteins having fatty acid desaturase activity and for use of antisense desaturase gene sequences. However, there is no support provided for the effect of expression in a plant of a mutant desaturase that is catalytically inactive. It remains unclear and untested that the expression of a catalytically inactive desaturase in a plant will decrease fatty acid desaturase activity in the seed and alter the amount of unsaturated fatty acid in the seed.”

In view of new claims 35-42, the comments are no longer believed to be directly on point. However, to the extent the rejection remains pertinent, the following comments are made. The specification provides support for altering the amount of unsaturated fatty acid in seeds of a plant comprising transforming the plant with a nucleic acid encoding a fatty acid hydroxylase. See, page 65, Table 2, showing the results obtained from the seeds of transgenic plants which have been transformed with nucleic acid encoding a fatty acid hydroxylase. As shown in Table 2, the seed from the transgenic plants has approximately twice the amount of 18:1 fatty acid as the amount of 18:2 fatty acid and approximately twice the amount of 18:1 fatty acid as the wild-type. The 18:2 fatty acid has two sites of unsaturation while the 18:1 fatty acid has one. Therefore, the presence of the hydroxylase enzyme results in a decrease in the fatty acid desaturase activity as shown by the decreased amount of 18:2 fatty acid produced. Thus, support for claims 35 and 39 is found, for example, in Table 2 and elsewhere throughout the specification.

Regarding claims 36, 37, 40 and 41, the specification discloses (page 63, lines 5-20) both the *Castor* and *Lesquerella* hydroxylases differ from all of the known desaturases by just seven amino acid residues. Therefore, the seven sites distinguish hydroxylases from desaturases. The specification discloses the hydroxylase enzyme can be inactivated by the elimination of one or more of the histidine residues required for catalysis. An expected outcome is that expression of the mutant hydroxylase protein in transgenic plants will inhibit the activity of the desaturase (specification page 67, lines 27-30). There is no requirement that the hydroxylase be catalytically active to decrease the desaturase activity. Furthermore, Applicants respectfully point out that compliance with the enablement requirement does not turn on whether an example is disclosed, the specification need only disclose the invention in such a manner that one skilled in the art would be able to practice the invention without an undue amount of experimentation. *In re Borkowski*, 422 F.2d 904; 164 USPQ 642 (CCPA 1970). Applicants assert one of skill would be able to determine whether the amount of a fatty acid had increased or decreased using methods disclosed in the specification. Thus, given the teaching of the specification and the high level of skill in the art one of skill in the art would be able to practice the claimed invention.

Conclusion

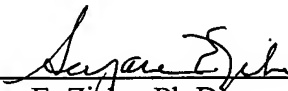
The foregoing amendments and remarks are being made to place the application in condition for allowance. Applicants respectfully request reconsideration and the timely allowance of the pending claims. A favorable action is awaited. Should the Examiner find that an interview would be helpful to further prosecution of this application, she is invited to telephone the undersigned at his convenience.

If there are any additional fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

The Examiner is requested to contact the undersigned if there are any outstanding issues.

Respectfully submitted,

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